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DEL S. CHRISTENSEN — March 24, 2004 (Date of Signature)

PATENT
TH 2094 (US)
DSC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	
Edward Paul Cernocky and Allen J. Lindfors	GROUP ART UNIT 3641
Serial No. 09/896,432	EXAMINER: H. A. Blackner
Filed June 29, 2001	March 24, 2004
METHOD AND APPARATUS FOR DETONATING AN EXPLOSIVE CHARGE	

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPELLANT'S BRIEF

The following brief is on appeal of a final rejection of claims of the above-identified U.S. patent application, the final rejection contained in an Office action mailed on October 8, 2003, and a notice of appeal mailed by applicant on January 8, 2004. This brief is filed in triplicate. Please charge the fee for filing of this brief to Shell Oil Company Deposit Account No. 19-1800. It is respectfully requested that the Board consider the following arguments and reverse the final rejection of claims 1-14 in the above-identified application.

REAL PARTY IN INTEREST

The invention of the present application is assigned to Shell Oil Company, which is the real party of interest in the present appeal.

RELATED APPEALS AND INTERFERENCES

Appellant, and appellant's legal representative, are not aware of any appeals or interferences that directly affect or could directly be affected by or have a bearing on the Board's decision in the present appeal.

STATUS OF THE CLAIMS

Claims 1-14 stand as finally rejected under 35 U.S.C. §103(a).

STATUS OF AMENDMENT

There are no amendments filed herewith or outstanding with respect to this application.

SUMMARY OF THE INVENTION

The present invention relates to a detonation device for selectively perforating a tubular with a designated explosive charge using wireless communications to trigger a high voltage charge across a bridge wire to cause detonation of the respective explosive charge. The wireless communications include a receiver that detects a coded signal so that different charges may be placed on a casing before the casing is set in the wellbore, and each of the perforations may be formed at a later time of the choosing of the operator.

ISSUES

1. Whether a prima facie basis for rejection of claims1-5 and 7-14 exists in the combination of Babour et. al and Guerreri.

3. Whether a prima facie basis for rejection of claims 6 exists in the combination of Neyer and Guerreri et al.

GROUPING OF CLAIMS

Claims 1-5, and 7-14 stand together and claim 6 stands alone.

ARGUMENTS

1. Prima facie basis for rejection of claims1-5 and 7-14 lacking in the combination of Babour et. al and the other references relied upon

Claims 1-5 and 7 stand as rejected over Babour et al. (US patent no. 5,467,823) in view of Guerreri et al. (US patent 4,884,506). Claims 8-12 and 14 stand as rejected over Babour et al. with Guerreri et al. and Abouav (US patent no. 5,090,321), and claim 13 stands as rejected over these three in addition to Nwyer (US patent no. 6,234,081).

To form a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the calim limitations. MPEP § 2142, citing *in re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The present rejections fail to state a motivation to combine the references, in particular, Babour et al. to form a *prima facie* basis for the rejection, and additionally, even if combined, the element of perforation of the tubular is not taught or suggested in the combined references. Thus a proper *prima facie* basis for the rejection is not provided.

Babour et al. suggest a system for installing sensors in a cemented region around a wellbore, and then perforating the cement around the casing. Babour et al. uses a hard wire connection to control a detonation of shaped charges to perforate the cement without damaging the casing. The goal of Babour et al. is to provide communication to the monitor from the formation surrounding the wellbore through the cement. In FIG. 5 of Babour et al., a separate uncased wellbore is used to place the sensor in the formation, and then the cement is perforated to provide communication between the sensor and the formation. In neither embodiment is a tubular perforated by the remotely controlled shaped charge.

Guerreri et al. suggests a remote detonation system for detonation of explosive charges selectively. Guerreri et al.'s system is suggested for use in applications such as military applications where the charge is transported to a hazardous location by a remote controlled tractor, and then

detonated. It is not suggested that the remote detonation system of Guerreri et al. be used to perforate wellbores as in the present system.

The Examiner indicated, on page 3 of the Office action mailed on October 8, 2003, that it "would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Guerreri's remote detonation device in order to assemble a detonation device that can operate within an environment having high levels of extraneous electricity including stray ground currents, electromagnetic fields, and radio frequency energy." A wellbore casing is generally pretty well grounded. It is not a problem in the oilfield that extraneous electrical signals cause problems in communicating up and down a wellbore. Further, if there were extraneous electrical signals, one of ordinary skill in the art might tend to favor a hard wired system such as the wire used to communicate with the shaped charges of Babour et al. as suggested in Babour et al. This rational is closer to a teaching away than a suggestion to combine the references. The Examiner has not provided a basis for a suggestion that a person of ordinary skill in the art would combine Barour et al. and Guerreri et al. to suggest the system of the present invention.

Babour et al. is relied on by the Examiner to suggest perforation of a wellbore casing. To the contrary, Babour et al. perforates the cement around the casing with a shaped charge, and does not perforate a casing. Babour et al., in column 3, line 45-47, describes the charges as being tangential to the casing in order to miminize any damage to the casing. This element is missing from the present combination over which claims 1-5 and 7-14 are rejected.

2. Prima facie basis for rejection of claims 6 is lacking in the combination of Neyer and Guerreri et al.

Neyer et al. suggests a slapping bridge to dentonate an explosive, but does not add to Guerreri et al. the elements of perforation of a wellbore tubular as required in claim 1 (from which claim 6 is dependent). Additionally, the reasons why Babour et al. in view of Guerreri do not form a prima facie basis for the rejection of claims 1-5 and 7-14 also apply to the present rejection of claim 6.

CONCLUSION

For the reasons set forth above, the applicants assert that the rejections made by the Examiner are improper. Applicants therefore request that the Board reverse the Examiner's rejections, and allowance of the claims is respectfully requested.

Respectfully submitted,

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Enclosure: Triplicate copies of Petition with appendix of claims

APPENDIX

Claims under Appeal

US 09/896,432

1. A detonation device for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, said device comprising:

the tubular;

the designated explosive charge attached to the tubular;

a wireless receiver;

microprocessor and control means connected to said wireless receiver;

an explosive bridge wire;

high voltage supply means; and energy storage and trigger means, whereby a coded signal received by said wireless receiver is decoded by the micro processor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which will supply high voltage to explosive bridge wire which will create sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

2. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

3. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

4. The detonation device according to claim 1, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

5. The detonation device according to claim 1 wherein the wireless signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

6. The detonation device according to claim 1 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said board with a portion of the circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

7. The detonation device according to claim 1 wherein said microprocessor includes digital signal processing logic.

8. A method for selectively perforating a tubular with a designated explosive charge located downhole in a well bore, comprising the steps of:

attaching the explosive charge to the tubular;

providing a detonating device having a wireless receiver, microprocessor and control means connected to said wireless receiver, at least one explosive bridge wire, high voltage supply means, and energy storage and trigger means; and

transmitting a coded signal to said wireless receiver to be decoded by the microprocessor and, if the code designates that the respective explosive charge is to be detonated, sends a signal to the trigger means which supplies high voltage to the explosive bridge wire causing it to

substantially instantly vaporize creating sufficient energy to initiate detonation of the respective explosive charge and thereby perforating the tubular.

9. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges individually.

10. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in sequence.

11. The method according to claim 8, wherein said coded signal allows selective detonation of a plurality of explosive charges in any desired pattern.

12. The method according to claim 8 wherein the coded signal does not transmit the power to initiate detonation of the explosive charge thereby reducing the risk of accidental detonation of the explosive charge.

13. The method according to claim 8 wherein said explosive bridge wire comprises:

circuit board having an aperture therein;

an electrical circuit formed on said circuit board with a portion of the electrical circuit overlying said aperture forming a bridge, said bridge having dimensions smaller than the rest of the electrical circuit so that, upon application of power to the electrical circuit, the bridge will flash vaporize causing detonation of the nearby explosive charge.

14. The method according to claim 8 wherein said microprocessor includes digital signal processing logic.